Ajay Sunandan

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EDUCATION

Carnegie Mellon University — Pittsburgh, USA

Master of Science in Information Security | GPA: 3.73/4.0 — Dec 2025

Relevant Coursework: Network Security, Cloud Security, Introduction to Information Security, Cyber Risk Modeling, Applied Information Assurance, Introduction to Computer Systems, Distributed Systems

Amrita University — Coimbatore, India

Bachelor of Technology in Computer Engineering | GPA: 9.05/10.0 | First Class with Distinction — Jun 2021

EXPERIENCE

Cisco Systems — **Bengaluru, India**

Network Consulting Engineer — Aug 2021 – Jul 2024

- Successfully migrated **20+ critical sites** and deployed **50+ new network devices**, executing **30+ maintenance windows** with **100% success rate** and **zero service interruptions**, resulting in **45% improvement** in network performance and reliability.
- Identified and resolved issues with routing protocols (OSPF, BGP, IS-IS, and MPLS-VPN) throughout migration process.
- Implemented a configuration conversion tool for multi-vendor router migration using Jinja and TTP template engines, streamlining the process with a **70% decrease in errors** and **25% increase in project efficiency.**
- Developed an application for efficient employee's skills data collection and visualization, achieving a **70% utilization rate** among managers through effective engagement and training initiatives.
- Engineered network automation solution with Python and TextFSM, reducing service discovery time by **75% (from 15 hours to 20 minutes)** and **improving operational visibility by 80%.**
- Conducted comprehensive software risk analysis for ISP infrastructure, identifying **60+** potential vulnerabilities and recommending mitigation strategies to improve overall security posture.

Network Engineering Intern — Jan 2021 – Jul 2021

- Collaborated on rigorous testing of internal automation tools with comprehensive documentation for a new migration project, while simultaneously implementing an MPLS-VPN simulation environment that successfully **configured 5+ complex routing scenarios** for potential client use cases.

PROJECTS

Information Security CTFs — **Aug 2024 - Present**

- **Web Application Attacks**: SQL Injections, XSS, CSRF, CORS, Authentication, Server-side attacks, HTTP Request smuggling.
- **Binary exploitation**: Stack canary, ASLR, ret2libc, NOP sleds and ROP gadgets (buffer overflow).
- **Cryptography**: ECB, SHA-256 Hash Extension, Padding Oracle, and PGP.
- **Reverse Engineering**: Static analysis, Dynamic debugging, Decompilation techniques, and Assembly language interpretation (x86-x64).

Remote Method Invocation Library — **Feb 2025**

- Designed and implemented a robust RMI library enabling method calls across network boundaries with support for complex data structures, multithreading, and fault tolerance mechanisms to handle network failures, ensuring reliable communication between distributed applications.

Malloc Lab — **Oct 2024 - Nov 2024**

- Developed a memory allocator, optimized throughput and achieved **74.4% utilization** using techniques like segregated free lists, footer removal, decreasing minimum block size and tested correctness and efficiency through GDB and automated drivers.

Cache Lab — **Oct 2024**

- Designed and implemented a cache simulator in C, including optimizing a matrix transpose function to minimize cache misses, reducing clock cycles to meet performance thresholds for both 32x32 and 1024x1024 matrix sizes.

Shell Lab — **Nov 2024 - Dec 2024**

- Developed a robust Linux-based shell (tsh) that supported job control, I/O redirection, and signal handling, achieving **100% correctness** across **32 trace cases** while optimizing for race condition handling and adhering to async-signal-safe programming practices.

SKILLS

Languages: Python, C++, C, Golang, Bash/Shell, Assembly, Embedded C.

Computing Environments: Windows, Linux, GCP, AWS.

Frameworks, Tools, & Technologies: Nmap, Metasploit, Wireshark, Burpsuite, Suricata IDS, SIEM, Ansible, Git, Docker, Kubernetes, IAM, IDS/IPS, Firewalls, WAF, TCP/IP, IaC(Terraform), GDB, Ghidra, WinDBG, IDA Pro, OWASP Top 10, MITRE ATT&CK Framework, NIST CSF, STRIDE, FAIR, PASTA, Socket programming.

Certifications: AWS Solutions Architect (SAA-C03), Cisco Certified Network Associate (CCNA), Cisco Certified DevNet Associate.